

REMARKS

This is a full and timely response to the Office Action mailed December 2, 2009, submitted concurrently with a one month extension of time to extend the due date for response to April 2, 2010.

By this Amendment, claims 1, 3-5, and 8 have been amended. More specifically, claim 1 has been amended to incorporate the subject matter of claims 2 and 7. Claim 3-5 have been amended to correct their dependency. Claim 8 has been amended to more particularly define the present invention. Claims 2, 6-7, 15-18, and 34 have been canceled without prejudice or disclaimer to their underlying subject matter. Thus, claims 1, 3-5, 8-14, and 19-33 are currently pending in this application with claims 10-14, 19-21, 24-29 and 33 being withdrawn. Support for the claim amendments can be readily found variously throughout the specification and the original claims, see, for example, Figure 3 and paragraphs [0123] to [0136] of the present Patent Application Publication No. 2006/0144331 A1. Thus, no new matter has been added by these amendments.

In view of these amendments, Applicant believes that all pending claims are in condition for allowance. Reexamination and reconsideration in light of the above amendments and the following remarks is respectfully requested.

Rejection under 35 U.S.C. §102

Claims 1-9, 15-18, 22-23, 30-32, and 34 are rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Edwards et al. (U.S. Patent Application Publication No. 2004/0261700 A1). Applicant respectfully traverses this rejection.

To constitute anticipation of the claimed invention under U.S. practice, the prior art reference must literally or inherently teach each and every limitation of the claims. Here, in this case, Applicant submits that the Examiner has failed to establish anticipation of the claimed invention because Edwards et al. fails to disclose all of the claim limitations with particular emphasis on the newly added limitation *"a moving mechanism for moving the image capturing device in association with the switching of the dispensing device performing the dispensing operation so that the image capturing device is capable of photographing the tip end of the dispensing device performing the dispensing operation"* as recited in amended claim 1.

The present invention is directed to a dispensing apparatus comprising a dispensing mechanism including a dispensing device for dripping a sample or a reagent, an image capturing device for capturing the downward area image, a movable table capable of supporting, on its upper surface, a target object onto which the sample or reagent is to be dispensed and which is moved on a horizontal plane surface for positioning the target object at least at a dispensing position beneath the dispensing device and at an image capturing position beneath the image capturing device, a monitoring section for displaying the image captured by the image capturing device, a dispensing position designating section for designating the dispensing position on the target object based on the image of the target object displayed on the monitoring section, and a dispensing control section for positioning the target object and the dispensing device relative to each other so that the dispensing position on the target object designated by the dispensing position designating section is placed beneath the dispensing device of the dispensing mechanism and for controlling the dispensing operation of the dispensing mechanism (see paragraph [0032] of the present Patent Application Publication).

Please note that with the dispensing apparatus according to the present invention, the image captured by the image capturing device is displayed on the monitoring section and, based on the image of the target object displayed on the monitoring section, the dispensing position on the target object is designated. Thus, the dispensing control section positions the target object and the dispensing device relative to each other and controls the dispensing operation of the dispensing mechanism. Consequently, by designating the dispensing position on the image displayed on the monitoring section, a reagent or a sample is automatically dispensed onto the designated position (see paragraph [0033] of the present Patent Application Publication).

An image capturing device 106 such as a CCD camera is mounted obliquely above the nozzle tip end of the dispensing mechanism 102 so that the light-receiving axis 110 of the image capturing device 106 is at an angle θ with respect to the horizontal direction (see paragraph [0154] of the present Patent Application Publication). Since the image capturing device 106 is not fixed, it is capable of being moved in association with the switching of the dispensing device performing the dispensing operation (see paragraph [0038] and Figure 5 of the present Patent Application Publication).

Edwards et al. is directed to a microdeposition system and method that deposits precise amounts of fluid material onto a substrate. A microdeposition head includes a plurality of spaced nozzles. A positioning device controls a position of the microdeposition head relative to the substrate. A controller includes a positioning module that communicates with the positioning device and that generates position control signals for the positioning device. A nozzle firing module communicates with the microdeposition head and selectively generates nozzle firing commands to define features of an electrical device (see paragraph [0011] of Edwards et al.).

More specifically, Edwards et al. discloses a microdeposition system 20 including a controller 22, a head assembly 24, and a substrate assembly 26. A rotational position or pitch of the head assembly 24 is adjusted using a rotary position motor 30 and a rotary position sensor 32. Likewise, a height of the head assembly 24 relative to the substrate assembly 26 may be adjusted using a height adjustment motor 34 and a height sensor 36. A lateral position of the head assembly 24 is adjusted using a lateral position motor 40 and a lateral position sensor 42 (see paragraph [0062] and Figure 1 of Edwards et al.). A microdeposition head 50 with a plurality of nozzles is mounted on the head assembly 24, and a first camera 52 is mounted on the head assembly 24 (see paragraph [0063] of Edwards et al.). A second camera 84 is used for droplet analysis and is located adjacent to the capping station 80. Preferably, the first and second cameras 52 and 84 and the controller 22 provide digital optical recognition (see paragraph [0067] of Edwards et al.).

The microdeposition system of Edwards et al. has two cameras 52 and 84, which are disclosed in the paragraphs [0014], [0063], [0067], [0071], [0072], [0073], [0106] and [0107] of Patent Application Publication No. 2004/0261700 A1. The Examiner equates camera 52 or 84 with the image capturing device (see page 2 of the Office Action). However, in contrast to the present invention, Edwards et al. does not disclose an image capturing device being *capable of being moved in association with the switching of the dispensing device performing the dispensing operation* since two cameras 52 and 84 are *fixed*.

The first camera 52 is used to position the head assembly 24 relative to a substrate 53 that is located on the substrate assembly 26. More particularly, the first camera 52 is used to align the microdeposition head 50 using one or more nozzles of the head 50 as a reference (see paragraph [0063] of Edwards et al.). Therefore, the first camera 52 must be fixed in its position with respect to

the substrate. Further, an alignment module 112 aligns the substrate and the head 50 using optical character recognition using the first camera 52 and/or the second camera 84 (see paragraph [0072] of Edwards et al.). Therefore, the second camera 84 also must be fixed in its position with respect to the substrate.

Thus, Edwards et al. does not disclose “a moving mechanism for moving the image capturing device in association with the switching of the dispensing device performing the dispensing operation” as recited in amended claim 1.

In view of the above, claim 1 is allowable over Edwards et al. Claims 3-5 and 30-32 depend directly or indirectly from allowable claim 1 and, therefore, are allowable at least for the same reason that claim 1 is allowable.

As to claim 8, amended claim 8 recites a dispensing apparatus that includes, in part:

wherein the dispensing mechanism further comprising:

a dispensing device retaining portion fixed to a main body of the liquid dispensing apparatus, the retaining portion arranging the dispensing device with the discharging port facing downwardly;

dispensation liquid container arranged on the dispensing device retained by the retaining portion to communicate to the dispensing device;

an air-introducing head arranged on the dispensation liquid container for communicating to the dispensation liquid container to adjust an inner pressure of the dispensation liquid container; and

an arm mechanism including an arm and a lock, the arm being supported rotatably at its base end on the main body to mount the air-introducing head detachably, the lock being capable of fixing the arm to the main body so that the air-introducing head is mounted on the dispensing device retained by the retaining portion through the dispensation liquid container and capable of releasing the fixing.

Applicant respectfully submits that the above-incorporated detailed dispensing mechanism is not disclosed by Edwards et al. Therefore, Edwards et al. fails to disclose all of the limitations of amended claim 8. In view of the above, claim 8 is allowable over Edwards et al. Claim 9 depends directly from allowable claim 8 and, therefore, is allowable for at least for the same reason that claim 8 is allowable.

As to claim 22, the Examiner asserts that Edwards et al. disclose "a control device which compares the image of the discharging portion captured before charging liquid in the space and stored in the storing device with images captured after charging liquid in the space and *controls the pressure control mechanism* so that, when liquid exits from the discharging portion, the *liquid is retracted until the differences between the images and the image captured before charging liquid is cancelled*" (see page 6 of the Office Action). Applicant notes that the Examiner in rejecting claim 22 states "*see the rejection of claim 1 above*" (see page 6 of the Office Action) without providing corresponding reference numeral or cited portion(s) from Edwards et al. which read on above-referenced limitation. However, Applicant submits that claim 1 of the present application does not recite any control device which controls the pressure control mechanism.

After a review of Edwards et al., Applicant notes that the Examiner may believe the waveform generating module 116 to read on the control device of claim 8. However, Applicant respectfully disagrees and submits that the waveform generating module 116 is not the *control device* since it does not *control the pressure control mechanism*.

Edwards et al. discloses "*The waveform generating module 116, the drop analysis module 110 and/or the position and firing modules 114 collect data using the first and/or second cameras 52 and 84 and optical recognition. Adjustments may be made automatically using software and feedback from droplet analysis*" (see paragraph [0089] of Edwards et al.). More particularly, Edwards et al. discloses that "*the waveform generating module 116 communicates with waveform generators to individually adjust timing, duration, amplitude, rise slope and/or fall slopes of the nozzle firing waveforms for each of the nozzles 234*" (see paragraph [0090] of Edwards et al.). As described, there is clearly no disclosure of pressure control mechanism being controlled so that the liquid is retracted until the differences between the images and the image captured before charging liquid is cancelled (see paragraphs [0090] of Edwards et al.). Therefore, Edwards et al. fails to disclose all of the limitations of claim 22.

In view of the above, claim 22 is allowable over Edwards et al. Claim 23 depends directly from allowable claim 22 and, therefore, is allowable for at least the same reason that claim 22 is allowable.


Accordingly, withdrawal of the present prior art rejection is respectfully requested.

CONCLUSION

For the foregoing reasons, all the claims now pending in the present application are believed to be clearly patentable over the outstanding rejection. Accordingly, favorable reconsideration of the claims in light of the above remarks is courteously solicited. If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the below-listed number.

Dated: April 2, 2010

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